

Toddler's Monitoring Application Toward Growth and Development of Food Supply



**Submitted to Communication and Informatics Faculty of Muhammadiyah Surakarta
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of Informatics**

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APPROVAL

**Toddler's Monitoring Application Toward Growth And Development Of
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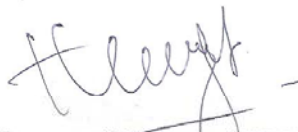
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TODDLER'S MONITORING APPLICATION TOWARD GROWTH AND
DEVELOPMENT OF FOOD SUPPLY

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Toddler's Monitoring Application Toward Growth And Development Of Food Supply

ABSTRACT

Nutrition is chemical component which is contained in food substances. Nutritional status of toddler is one of indicators that reflect level of social welfare. Now a days, there are many malnourished because mothers who do not understand how many calories should be given to their toddlers to support childhood development. Every toddler gets different number of calories depending on his age and body weight and body height. Many toddlers not breastfeed by their mother. Breastfeeding should be given to toddlers at ages 0 to 2 years. Breastfeeding is given as the main food for toddlers, in early 6 month of their life and 7 to 24 months it requires food additive.

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Two Only Report

Toddler's Monitoring Application Toward Growth And Development Of Food Supply

ABSTRACT

Nutrition is chemical component which is contained in food substances. Nutritional status of toddler is one of indicators that reflect level of social welfare. Now a days, there are many malnourished because mothers who do not understand how many calories should be given to their toddlers to support childhood development. Every toddler gets different number of calories depending on his age and body weight and body height. Many toddlers not breastfeed by their mother. Breastfeeding should be given to toddlers at ages do 0 to 2 years. Breastfeeding is given as the main food for toddlers, in early 6 month of their life and 7 to 24 months it requires food additive.

Therefore, we need an application that can find out how many calories which are needed for their toddlers. Toddlers will get different number of calories based on their age and body weight and body height. What kind of food supply contains enough calories for their toddlers, and how to calculate in order to get enough calories for them.

Therefore, once made this application can help the wider community, especially the mothers who do not understand about knowing how many nutrition, caloric and food supply which is needed by their children.

Keywords: Nutritional, Nutrition Calculator

ABSTRAK

Nutrisi adalah komponen kimia yang terkandung dalam smakanan. Nutrisi balita merupakan salah satu indikator yang mencerminkan tingkat social. Hari ini ada banyak kekurangan gizi karena ibu yang tidak mengerti berapa banyak kalori yang harus diberikan kepada balita mereka untuk mendukung pengembangan anak usia. Setiap anak mendapat nomor yang berbeda dari kalori tergantung pada usia dan berat badan dan tinggi badan. Banyak balita tidak menyusui oleh ibu mereka. Menyusui harus diberikan kepada balita di usia lakukan 0 sampai 2 tahun. Menyusui diberikan sebagai makanan utama bagi balita, pada awal 6 bulan hidup mereka dan 7 sampai 24 bulan membutuhkan makanan aditif.

Oleh karena itu, kita perlu sebuah aplikasi yang dapat mengetahui berapa banyak kalori yang dibutuhkan untuk balita mereka. Balita akan mendapatkan nomor yang berbeda dari kalori berdasarkan usia dan berat badan dan tinggi badan. Apa jenis pasokan makanan mengandung kalori yang cukup untuk balita mereka, dan bagaimana menghitung untuk mendapatkan kalori yang cukup untuk mereka.

Oleh karena itu, pernah membuat aplikasi ini dapat membantu masyarakat luas, terutama ibu-ibu yang tidak mengerti tentang mengetahui bagaimana manynutrition, kalori dan makanan pasokan yang dibutuhkan oleh anak-anak mereka.

Kata kunci: Gizi, Nutrisi Kalkulator

1. PRELIMINARY

Adequate nutrition is one of the pillars in creating quality human resources (Almatsier, 2010). According Supariasa (2012), the causes of malnutrition is divided into two major parts, namely direct cause and indirect cause. The direct causes cover the lack of nutrition from food and infectious diseases. Indirect causes cover, availability of food, health care and disease treatment, maternal knowledge, maternal education, social economic status and more.

Many toddlers are not breastfeed by his mother. Breastfeeding should be given to toddlers at ages 0 up to 2 years. Breastfeeding is given as the main food for toddlers under 6 month old, and in 7 to 24 months old, moter can mix it with solid food. Many toddlers who are malnourished at this time, mostly because mothers who have toddlers do not know how many calories that should be given to their toddlers. Toddlers get different number of calories based on their age, weight and height. Healthy center uses weight parameter toward toddler's age to examine their nutrition, may lead error to interprate of nutritional status such as swelling of toddler's body, frequent errors in measurements such as the effect on the child's clothing or movement when weighing.

Base on the above problems, it will be created applications that can help people, particularly mothers to be able to know the number of calories needed to each toddler and will determine good food for their toddlers.

The purpose of this research is to create a web-based application that allows people, particularly mothers to determine the number of calories for their toddlers. With this application mothers who have toddlers will feel the ease in knowing enough calories for their toddlers as well as knowing what kind food calories for toddler which has enough.

Several previous studies related to the topic and systems used as input for the accuracy of steps to implement this monitoring system include:

Yasin Fatah (2015) in Journal entitled Klasifikasi Status Gizi Balit Jenis Kelamin Laki-laki Menggunakan Jaringan Saraf Tiruanan explanation that nutritional status can affect the health of the infant, research conducted said nutritional status of male is easier to be detected. The study was conducted at the Posyandu toddler Asih Lestari Kartasura and the data obtained from inspection toddler in April 2015. The variables used were weight, height and age.

According to Tomy, Entin, Nur (2004) in his research entitled "Aplikasi untuk diagnosis pada Balita dan Bahan Kalori yang dibutuhkan untuk Nutrisi yang Seimbang

Menggunakan Metode Fuzzy Sugeno" Malnutrition is one form of irregularities and abnormalities of child development can occur if there are obstacles or interference with the process that is influenced by genetic and environmental factors. Cases of malnutrition are increasing and are very busy talking since been found in NTB, has opened our eyes about the problem of malnutrition among children under five. Reality on the ground, after the NTB, almost all regions in Indonesia immediately reported cases of malnutrition in the region. This phenomenon may be related to the allocation of funds being rolled by the government (Centre) for the prevention of malnutrition. With the advancement and development of technology today there was made the system of determining nutritional status in children as well as the calculation of food required for patients, where the composition of foodstuffs on the recommendation / suggestion, is decomposed into an individual needs. In the method, the fuzzy algorithm is used to determine the appropriate needs of food nutrient content and completeness of foodstuffs. With the end of the project is expected to facilitate the public in monitoring the nutritional status in children and can determine the right food for people and not the expensive cost to buy medicine or go to the hospital to consult on the recommended food for consumption.

According to Nugroho (2014) in his research entitled " Aplikasi Panduan dan Referensi Tumbuh Kembang serta Peningkat Imunisasi Balita Berbasis Android " At this time parents often pay less attention to the process of growth and development of their babies because their busyness and lack of information about the process of growth and development of Toddler. It can be bad for toddlers growth process such as mistakein food intake and treatment mistake for toddlers. With the Guide and Growth Reference with Toddler Immunization Reminder Application Android.

According Handayani and Wahyuni (2012) in his journal under the title Hubungan Dukungan Keluarga Dengan Kepatuhan Balita Dalam Mengikuti Posyandu Balita di Posyandu Balita Jetis Desa Krajan Kecamatan Weru Kabupaten Sukoharjo explained that the family has an important influence for infants, because infants require positive support from her family. Posyandu toddler an integrated health service posts for community activities include preventive, promotive, curative and rehabilitative. WHO estimates that the increase in the population aged under five in 2025 than in 1990 in Indonesia as much as 440%. Currently the number of children under five in the village Krajan many as 2441 people. To now recorded 390 members who follow Posyandu toddler in Posyandu Balita Krajan village Jetis districts Weru Sukoharjo district.

In the Journal of the American Dietetic Association. Galloway, AT, Fiorito, L, Lee, Y & Birch, LL. (2005). Parental pressure, dietary patterns, and weight status Among girls who are "picky eaters". Parenting found most mothers give food to her grandmother's affairs, especially in mothers who work outside the home. This action should be avoided. Mother as a house keeper, especially in providing food children should still take the time despite busy. Mothers who understand the child's favorite foods and eating habits of their children. When given to someone else, then the pattern and the type of food can't be certain it contains elements of four of five perfectly healthy. That parenting is parenting practices are applied to children under five and the maintenance of health. At the time the children can't be removed by yourself then everything depends on the needs of children first. Child's life is the basis for determining customs in the next year including eating habits. Therefore, parents should familiarize feeding is good and right

Based on what has been described above, it would require an applications on the toddler's of food supply and calories toddler and toddler nutrition, is easy to use so that all people, particularly mothers can use is also supported with features and an attractive appearance.

2. METHODS

This research used application design which is using Waterfall method, the method by analyzing the early stages of system development. Then the next stage of designing applications and workflow applications Toddler Application Monitoring Toward Growth And Development Of Food Supply, The next is the encoding using the programming language PHP and the last is the system testing stage. Design applications sourced from books, journals and some Internet sites that still have relevance to the application. Then next is the approach of some nutritionists to inquire formula and apply on the application, the following formula is subsequently applied to the application.

2.1 Formula :

- a.** Calculate nutrient toddlers (1 up to 5 years)

Determine the ideal weight (Berat badan ideal /BBI)

$$1) \text{ BBI} = (\text{Age in years} \times 2) + 8$$

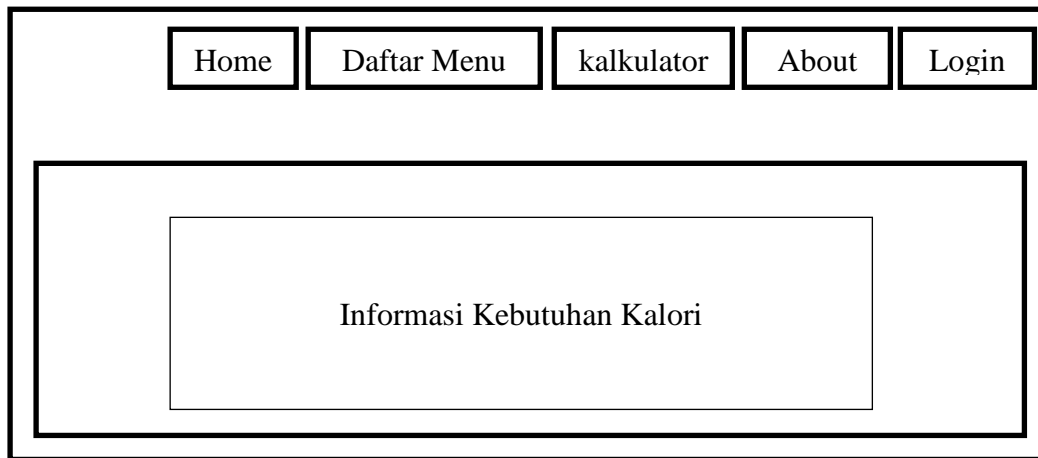
- b.** Determine the estimated energy and nutrient requirements total each day

$$2) \text{ Calorie} = 1000 + (100 \times \text{age in years})$$

Standard calorie needs : (1 up to 3 years = 100 kal/kg) (4 up to 5 years = 90 kal/kg)

- c. Protein = (10% x calorie) : 4
- d. Fat = (20 % x calorie) : 9
- e. Carbohydrate = (70 % x calorie) :

The analysis was conducted in sub-district Puskesmas Ceper Klaten district at the Posyandu toddler, some of the activities carried out, among others, to conduct a discussion on a nutritionist at the health center on the needs of toddlers posyandu at the health center. Then after doing the analysis, the next step is to design the application design, application design will be created as the picture 1. Design Application



Picture1. Design Application

The application consists of the home menu, which is main menu on the screen when accessing applications, food menu contains lists of foods that have been stored in the database, nutritional calculator menu serves to calculate the nutritional needed by entering the data, then about the menu is the menu that contains information app maker, login menu is a menu that is devoted to input the data food menu.

The third stage in the making of this application is to do coding, following some of the functions of the existing script commands on the application, the first one is the key submit picture 2. Nutrition Calculate.

Nama

Berat Badan (kg)

Tinggi (cm)

Usia (tahun)

Jenis Kelamin

submit

Activate Wi
Go to PC settin

Picture 2. Nutrition Calculate

On the page, there is a nutritional calculator Process to process the data input command toddler, following script to process orders,

```

1  $(".hitung").submit(function(){
2      data=$(this).serialize();
3      $.ajax({
4          url:"controller/rumus.php",
5          type:"POST",
6          data:data,
7          success:function(response){
8              document.location.href="hasilPerhitungan.php"
9          }
10     });
11     return false;
12 });

```

Then after the process it appears the food menu, the following script display the per-category of foods,

```

1  <tr>
2      <td><?php echo "$pp $namaKonversiMakananPokokPagi $namaMakananPokokPagi";?></td>
3      <td><?php echo $kaloriPokokPagi; ?></td>
4      <td><?php echo $bpp; ?></td>
5      <td><?php echo $kpp; ?></td>
6      <td><?php echo $ppp; ?></td>
7      <td><?php echo $lpp; ?></td>
8  </tr>

```

After displaying the food menu at the bottom, there is a print button to print the results, the following is a script Print to print the result,

```

1 <div class="col-md-12"><a href="javascript:genPDF()" class="btn btn-block btn-primary" >
2   <i class='Icon fa fa-print'> </i> Cetak</a>
3   <form><input type=button name=print value="Print" onClick="window.print()">
4   </form>
5 </div>

```

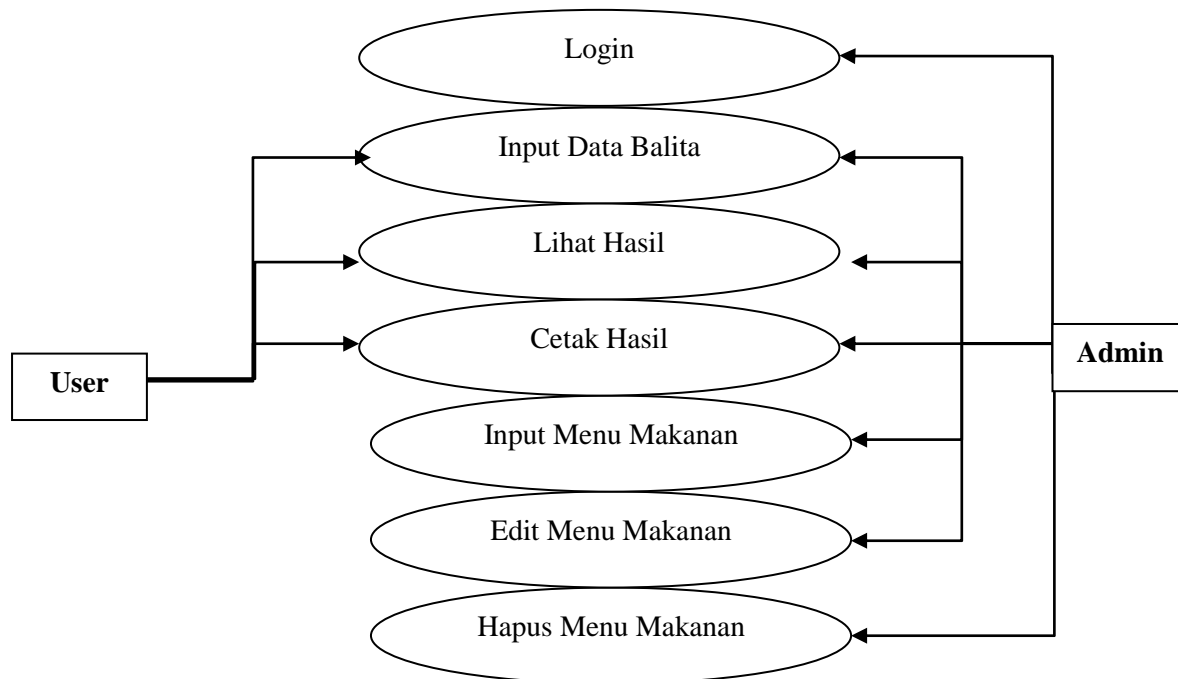
The final stage of this research is to carry out testing application, Toddler's Monitoring Application Toward Growth And Development Of Food Supply. The test aims is to determine how the success rate of applications that have been made. The test is conducted by distributing questionnaires to the respondents, there were 20 respondents. Testing by the user is conducted in Ceper District Health Clinics in Klaten. The method used in this research is questionnaire. Questionnaire aims are to find out how the success rate of applications that have been created, and therefore, the respondents had to answer in the form of strongly agree (SS), agree (S), disagree (KS), not agree (TS), and strongly disagree (STS).

Table 1. Number Data Application Assessment Questionnaire Results

No	Pertanyaan	Jawaban					JumlahSkor	PresentasiImplementasi
		SS (5)	S (4)	KS (3)	TS (2)	STS (1)		
1	P1	12	8	0	0	0	92	92%
2	P2	10	10	0	0	0	90	90%
3	P3	11	9	0	0	0	91	91%
4	P4	10	10	0	0	0	90	90%
5	P5	13	7	0	0	0	93	93%
6	P6	8	12	0	0	0	88	88%
7	P7	14	6	0	0	0	94	94%
8	P8	7	13	0	0	0	87	87%
9	P9	8	12	0	0	0	88	88%
10	P10	14	6	0	0	0	96	96%

The design process is done by designing modeling using UML (Unified Modelling Language). Stages are begin by using use case diagrams, Use Case Diagram consists of 7

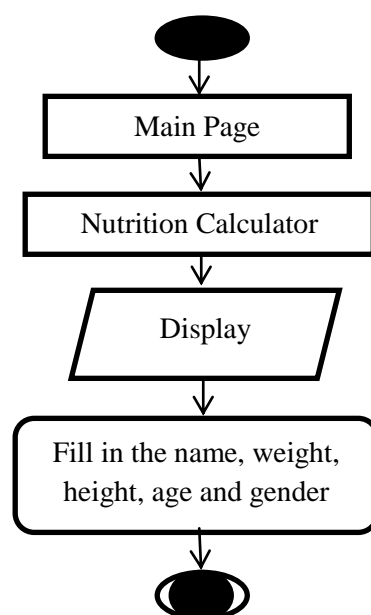
scenarios, namely: login, data input elderly, results, print results, input menu, edit menu, and use case scenarios to remove the food menu as show in picture 3.



Picture 3. Use case Diagram

2.3 Input Data Activity Diagram Toddler

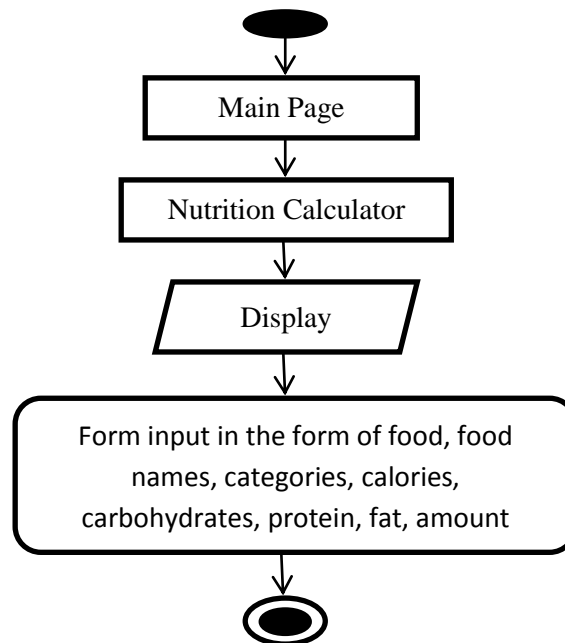
Toddler Activity Diagram Input Data contains the name of the toddler, the weight in kg, height in cm, gender and age in terms of years. As shown below picture 4.



Picture 4. Activity diagrams Input Data Toddler

2.3 Activity Diagram Input Menu Foods

Activity Diagram Input Menu Foods contains about form input in the form of food, food names, categories, calories, carbohydrates, protein, fat, grams, conversion name. As shown below picture 5.



Picture 5. Activity Diagram Input Menu Foods

3. RESULTS and DISCUSSION

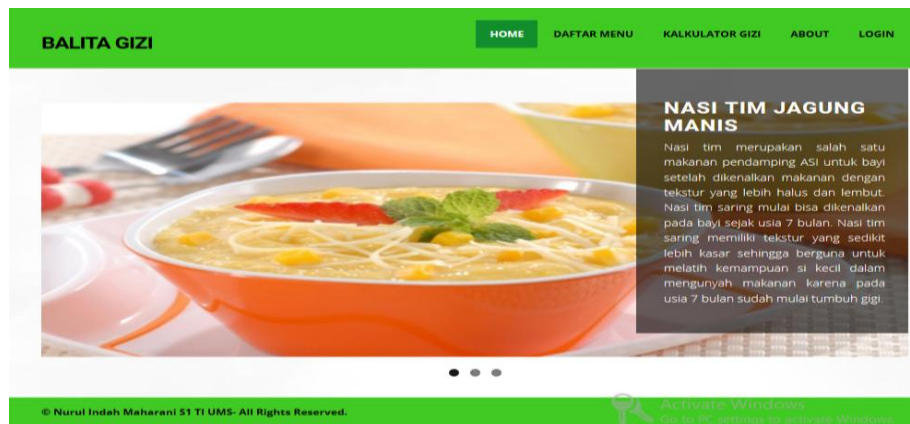
The results that have been achieved in this research is the application of Toddler's Monitoring Application Toward Growth And Development Of Food Supply. The parts of the application is, the home page, the information page, nutrition calculator page, the menu page and the login page. A menu page when the application on your start page is opened. The information page is the page that contains of information about application development. Nutrition calculator page is a page that contains a calculator counter nutritional. Page menu is a page that lists the food menu. The login page is the page that contains the login form for admin.

3.1 Application Display

Here are the results of the application program that has been created:

3.1.1 Home Page

Application home page is the first page while the user to enter the address "http://localhost/gizib/index.php" in the address bar of a web browser connected to the web server is localhost. In part this is beginning to see the program (starting) and featured some of the program menu.



Picture 6. Home Page

3.1.2 Nutritional Calculate Page

Nutrition Calculator page is the page which is the main destination application, which is to calculate the number of calories needed by healthy toddlers within 1 day. On page calculator user must input some information about toddlers such as name, gender, age, weight and height.

Picture 7. Nutritional Calculate page

3.1.3 Food Menu Page

Page menu is a page that contains the list of existing food menu on the toddler's application monitoring application Toward Growth and Development of Food Supply.

DAFTAR MENU MAKANAN								
<div> Semua Menu Makanan Pokok Sayur Lauk Hewani Lauk Nabati Buah Camilan </div>								
No	Nama Menu	Kategori	Kalori	Karbohidrat	Protein	Lemak	Jumlah Gram	Konversi
1	Biskuit	Camilan	35.00	5.40	0.80	1.10	100	1 Buah
2	Kue bolu	Camilan	103.00	21.50	2.20	1.00	50	1 Buah
3	Kroket	Camilan	73.00	0.70	1.20	2.80	25	1 Buah
4	Donat	Camilan	120.00	13.86	1.56	6.00	50	1 Buah
5	Lumpia	Camilan	66.50	1.47	1.72	0.50	50	1 Buah
6	Molen	Camilan	106.00	9.10	0.80	7.00	50	1 Buah
7	Risoles	Camilan	98.00	13.30	4.10	3.00	50	1 Buah
8	Nagasari	Camilan	106.00	16.00	1.30	4.40	50	1 Buah
9	Sayur sop	Sayur	50.00	10.00	3.00	0.00	100	1 Mangkuk
10	Tumis buah pepaya muda	Sayur	46.68	4.90	2.10	2.00	100	1 Mangkuk

Picture 8. Food Menu Page

3.1.4 Result Nutrition Calculate Page

Displaying the results of the calculation status nutrition calculator among other things, ideal weight, calories, protein, fat, carbohydrates needed and featuring foods that help add calories for toddlers.

1 Gizi Balita

2 Gizi Balita

3 localhost/gizib/hasilkalkulator.php?kodeBaru=U031

← → ↺

localhost/gizib/hasilkalkulator.php?kodeBaru=U031

☆

🗨️

This page is in Indonesian • Would you like to translate it?

Translate

Nope

Options ▾

KALKULATOR GIZI

Nama : Raka

Jenis Kelamin : L

Usia : 2 th

Tinggi : 99 cm

Berat : 14 kg

Status Gizi : Gemuk

Berat Ideal : 12.00 kg

Kalori :850.00 Kkal

Protein :21.00 g

Lemak :19.00 g

Karbohidrat :202.00 g

Makan Pagi

Menu Makanan	Kalori	Berat	Karbohidrat	Protein	Lemak
1 piring nasi tim	106.25 Kkal	88.54 g	0.00 g	2.04 g	0.00 g
0 Mangkuk Tumis jamur putih	21.25 Kkal	43.65 g	2.23 g	0.96 g	1.09 g
0 Ekor Lele goreng	42.5 Kkal	23.61 g	0.00 g	4.13 g	2.66 g
0 Ekor Pindang goreng	42.5 Kkal	15.18 g	0.00 g	3.34 g	2.43 g

Camilan Pagi

Picture 9. Result Nutritional Calculate Page

3.2 TESTING and DISCUSSION

Testing is done offline systems are advantages and disadvantages. Advantages and disadvantages, namely:

Advantages :

- a. This application helps in determining the size of the meal a day for healthy elderly.
- b. The results of this application can be in print, and save PDF format.
- c. Application Toddler's Monitoring Application Toward Growth and Development of Food Supply this has been used by nutritionists in the Puskesmas Cepur klaten.

Disadvantages :

1. This application is still offline.
2. The display on the edit menu the food is still very simple.
3. Menu food for toddlers with the most minimal age limit and 5 years are still the same

4. FINALITY

Counting calories for healthy toddlers is very necessary because it is not only pregnant women and adults who need healthy food intake according to condition body. Most People do not notice it because of the lack of knowledge about nutrition for toddlers. Community and nutrition experts and doctors have a positive response to the applications that have been created. Design applications judged to be boring also make the application invisible simple. Apart the use of applications that are not complicated application also adds positive value.

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